

APPENDIX D

Glossary

Abiotic: Referring to non-living substances.

Biotic: Relating to life or living things

Classify: To sort or order objects and events according to their properties or attributes based on their similarities.

Communicate: To transfer information by use of various methods, such as oral or written language, pictures, maps, graphs, diagrams or mathematical equations.

Concept: A broad fundamental understanding that must be developed and continuously refined as the individual gains further experience.

Constructivism: The process of building new knowledge based on what is already known.

Content: What students should know and be able to do in the natural sciences over the course of K-12 education.

Controlling variables: Managing the factors in an experiment necessary for the results of the experiment to be reliable.

Curriculum: The organization and presentation of content in the classroom.

Defining operationally: Stating definitions in working terms.

Evolution: A series of changes over time, some gradual and some sporadic, that accounts for the present form and function of objects, organisms and natural and designed systems. Evolution may refer to biological changes, geological changes and/or technological changes.

Experiment: To test a hypothesis through the manipulation and control of independent variables and noting the effects on a dependent variable; necessary to the total scientific process; uses all process skills.

Extrinsic disease: A disease or illness originating from a causative agent outside the body.

Hypothesize: Forming a generalization based on observations, inferences and predictions that may be tested by one or more experiments.

Infer the use of logic to make conclusions from observations, facts or recognized patterns.

Inquiry: a set of processes by which students and scientists pose questions, plan and conduct investigations, think critically about relationships, and construct and analyze explanations; allows students to learn science in a way that reflects how science actually works.

Interpreting data: Making predictions, inferences and hypotheses from a set of data.

Intrinsic disease: A disease originating or situated within the body or part acted on, and not caused by an external pathogen.

Investigation: Conducting research and experimentation, using the proper method of inquiry and tools of science, to arrive at reasonable hypotheses based on the results.

Mass: The amount of matter in an object.

Measure: To express the amount of an object or substance in quantitative terms, such as area, length, volume, or mass; proper instruments and tools must be utilized and the results in science are most often expressed in metric terminology, such as meters, liters and grams.

Model: A representation of an object, idea, concept or "real" thing. Models may be physical, conceptual, mathematical or verbal.

Natural Resource: Material supplied by nature, and not made or caused by human beings, such as water, coal, forests, natural gas, etc.

Nature of Science: An understanding of historical perspectives, the development of science as a human endeavor, and methods of inquiry, problem solving and interpreting information.

Niche: The habitat supplying the factors necessary for the existence of an organism or species.

Observe: To use one or more of the five senses, as well as simple or complex instruments or tools, to investigate the properties of objects and events.

Predict to forecast a future occurrence based on past experiences, prior knowledge or current observations.

Process Skills: The ways in which scientists gather, sort, organize, analyze, and make sense of information about the world. Basic skills are observing, communicating, classifying, and measuring. Advanced skills are predicting, inferring, controlling variables, defining operationally, and experimenting.

Qualitative: Relating to characteristics or attributes

Quantitative: Relating to measurement or amount

Technology: The application of science to solve practical problems and design solutions or products.

Theory: A comprehensive, logical explanation of phenomena based on currently available evidence, and capable of generating hypotheses and testable predictions about the natural world. A theory may be challenged, tested and modified over time.